N65928.AR.001035
NTC ORLANDO
5090.3a

QUARTERLY GROUNDWATER SAMPLING STUDY AREA 52 WITH TRANSMITTAL LETTER
NTC ORLANDO FL
5/16/2000
TETRA TECH

TETRA TECH NUS, INC.
800 Oak Ridge Turnpike, A-600 ▪ Oak Ridge, Tennessee 37830
(865) 483-9900 ▪ FAX: (865) 483-2014 ▪ www.tetratech.com

08.04.52.0005
002666

0500-A066

May 16, 2000

Commanding Officer
SOUTHNAVFACENGCOM
ATTN: Ms. Barbara Nwokike, Code 1873
P.O. Box 190010
2155 Eagle Drive
North Charleston, SC 29419-9010

Subject: Study Area 52 Quarterly Groundwater Sampling, January 2000
McCoy Annex, NTC, Orlando

Dear Ms. Nwokike:

Enclosed are the results from the quarterly groundwater sampling conducted at SA 52 in January 2000. The results for this and previous sampling events, are summarized in the attached tables and figures. Copies of the field log sheets are included in Attachment A.

The next sampling at SA 52 was completed in April 2000, and the results will be issued in July 2000. If you have any questions please contact me at (865) 220-4730.

Sincerely,

Steven B. McCoy, P.E.
Task Order Manager

SBM:ckf

Enclosure

c: Mr. Rick Allen, Harding Lawson Associates
Mr. David Grabka, FDEP
Mr. Wayne Hansel, SOUTHNAVFACENGCOM
Ms. Nancy Rodriguez, USEPA Region IV
Mr. Steve Sangaris, CH2M Hill
Mr. Michael Campbell, Tetra Tech NUS
Mr. Mark Perry, Tetra Tech NUS (unbound)
Ms. Debbie Wroblewski, Tetra Tech NUS (cover letter only)
File/db

GROUNDWATER SAMPLING AT STUDY AREA 52

Trip Dates: January 18 - 25, 2000

Site Name: Study Area 52
McCoy Annex, Naval Training Center, Orlando, Florida

TO Manager: Steve McCoy

Field Team: Greg Sisco
Kevin Margetts

Prepared by: Greg Sisco

1. PURPOSE

Quarterly groundwater sampling was conducted at Study Area (SA) 52 in January 2000. The fieldwork was performed in accordance with the *Work Plan for Groundwater Sampling* (Tetra Tech NUS, 1999a), and *Project Operations Plan* (POP) (ABB-ES, 1997).

2. ACTIVITIES

Tetra Tech NUS, Inc. mobilized to the field on January 18, 2000 to perform quarterly monitoring at SA 2, SA 52, and Operable Unit (OU) 3. Work at SA 52 was performed on January 21, 2000 and included a water level survey and groundwater sampling. Groundwater levels were measured in wells OLD-52-11, -12, -13, and OLD-52-06 (microwell). Groundwater elevations for this field event and previous events are summarized in Table 1.

Sampling – Three wells at SA 52 were purged and sampled on January 21, 2000. All wells were purged using the low-flow method described in the POP. Purging of the wells consisted of removing groundwater with a peristaltic pump at a rate of approximately 100 ml/mim until field parameters (temperature, pH, conductivity turbidity, dissolved oxygen, and ORP) had stabilized. Water levels in the wells were monitored every 3 to 5 minutes to ensure that drawdown was less than 0.3 feet. At the lowest pump setting well OLD-52-11 exceeded the drawdown goal of 0.3 feet with a final level of 0.97 feet below the original water level. Groundwater sample log sheets are included in Attachment A.

Sample Turbidity – Turbidity in wells OLD-52-11 and -13 was 800 and 50 NTU, respectively, which did not meet the goal of less than 10 NTU. However, turbidity was stable and the samples were collected. The turbidity readings for the last three sampling events are shown below:

Sample Date	OLD-52-11	OLD-52-12	OLD-52-13
07/27/99	160 NTU	25 NTU	1.1 NTU
10/24/99	695 NTU	3.09 NTU	29.5 NTU
01/21/00	800 NTU	<1 NTU	50 NTU

All groundwater samples were collected using vacuum jug methods to ensure that sample water did not contact non Teflon-lined tubing surfaces. Groundwater samples from SA 52 were analyzed for pesticides using USEPA Method 8081A. All samples were placed on ice in coolers and shipped overnight to Quanterra Environmental Services, Inc. in North Canton, Ohio for analysis.

3. PROBLEMS ENCOUNTERED

Other than the problems lowering turbidity in two of the three wells and drawdown greater than 0.3 feet in well OLD-52-11, no problems were encountered at the site during the purging/sampling.

4. RESULTS

Water Level Survey – Groundwater elevation data measured at SA 52 on January 21, 2000, are presented in Table 1 and on Figure 1. Current water level data are consistent with the northeasterly groundwater flow direction presented in the SA 52 Environmental Site Screening Report (HLA, 1999) and the previous quarterly sampling reports (Tetra Tech NUS, 1999b and 2000).

Data Validation – Qualification of the data was performed using the *USEPA Contract Laboratory Program: National Functional Guidelines for Organic Data Review* (USEPA, 1999). The data validation evaluated data completeness, holding time compliance, calibration compliance, laboratory blank contamination, surrogate spike recovery, matrix spike recovery, blank spike recovery, internal standard response, sample quantitation, and detection limits. Qualifiers resulting from the validation process are shown with the analyte concentration in Tables 2, 3, and 4.

Analytical Results – Table 2 presents a summary of the groundwater positive detections for SA 52 for the January 2000 monitoring event. The historical groundwater data are presented in Table 3. A complete listing of the validated analytical data for January 2000 is included as Table 4. Shaded cells indicate concentrations equal to or greater than Florida Groundwater Cleanup Target Levels (GCTLs). The distribution of pesticides detected above the GCTLs is shown on Figure 2.

Analytical laboratory results from groundwater collected from monitoring wells OLD-52-11 and -12 did not indicate the presence of any pesticides. This is the second consecutive quarter that pesticides were not detected in these wells. Groundwater from monitoring well OLD-52-13, however, contained six of the 21

pesticide compounds analyzed. Three of the six analytes detected had concentrations above their Florida GCTLs (4,4'-DDD detected at 0.28 J µg//L, Aldrin at 0.021 J µg/L, and Dieldrin at 0.19 µg/L).

Reporting and Method Detection Limits – The laboratory reporting limit for Aldrin in the January 2000 samples was 0.05 µg/L. The reporting limit was established by the calibration standards (concentrations of 0.05 µg/L) used by the lab in analyzing these samples. According to Quanterra's "detection limit study", the lab's Method Detection Limit (MDL) for Aldrin is 0.01 µg/L. Thus, concentrations approaching 0.01 µg/L should be detected and reported as "J" or estimated values. For example, the concentration in sample NTC52G01312 is reported as 0.021 J. It should be noted, however, that the MDL of 0.01 µg/L is higher than the GCTL of 0.005 µg/L.

REFERENCES

ABB-ES (ABB Environmental Services, Inc.), 1997. *Project Operations Plan for Site Investigations and Remedial Investigations.* Naval Training Center, Orlando, Florida, Unit Identification Code N65928, Navy CLEAN District 1, Contract No. N62467-89-D-0317, August.

HLA (Harding Lawson Associates), 1999. *Base Realignment and Closure, Environmental Site Screening Report, Interim Remedial Action, Study Area 52.* Naval Training Center, Orlando, Florida, Unit Identification Code N65928, Navy CLEAN District 1, Contract No. N62467-89-D-0317/107, March.

Tetra Tech NUS, Inc., 1999a. *Work Plan for Groundwater Sampling.* Document No. R4707995, November 9, 1999.

Tetra Tech NUS, Inc., 1999b. *Groundwater Sampling at Study Area 52.* Document No. R471991, November 23, 1999.

Tetra Tech NUS, Inc., 2000. *Groundwater Sampling at Study Area 52.* Document No. R4701001, January 10, 2000.

USEPA, 1999. *Contract Laboratory Program: National Functional Guidelines for Organic Data Review.* EPA/540/R-99/008, Office of Solid Waste and Emergency Response, Washington, D.C., October.

FIGURES

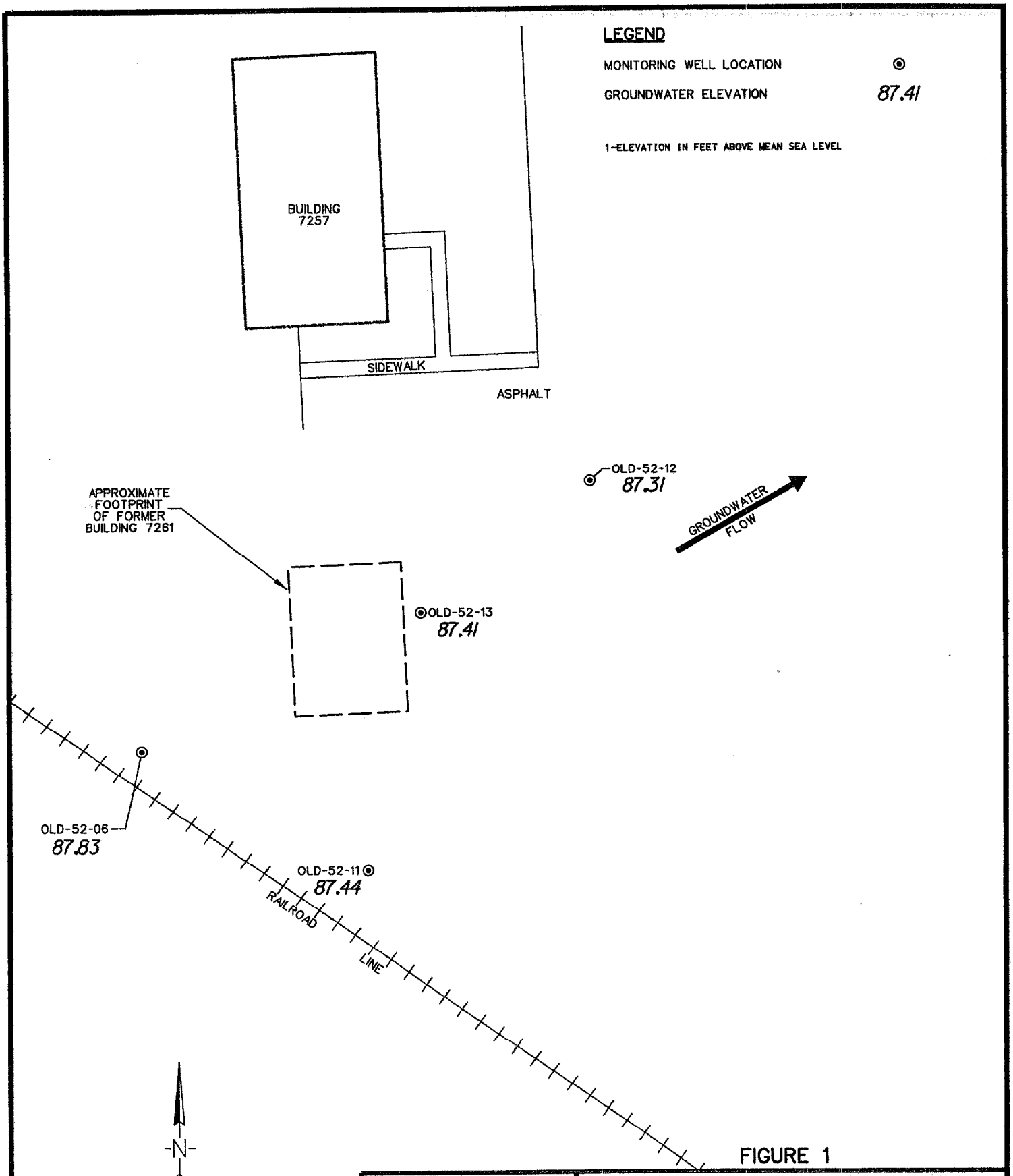

FIGURE 1

GROUNDWATER ELEVATION MAP
JANUARY 21, 2000
QUARTERLY MONITORING REPORT
STUDY AREA 52 - McCOY ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n8-5x11v.dgn

CAD FILE NO./DATE: 74570059.dgn/5-16-00

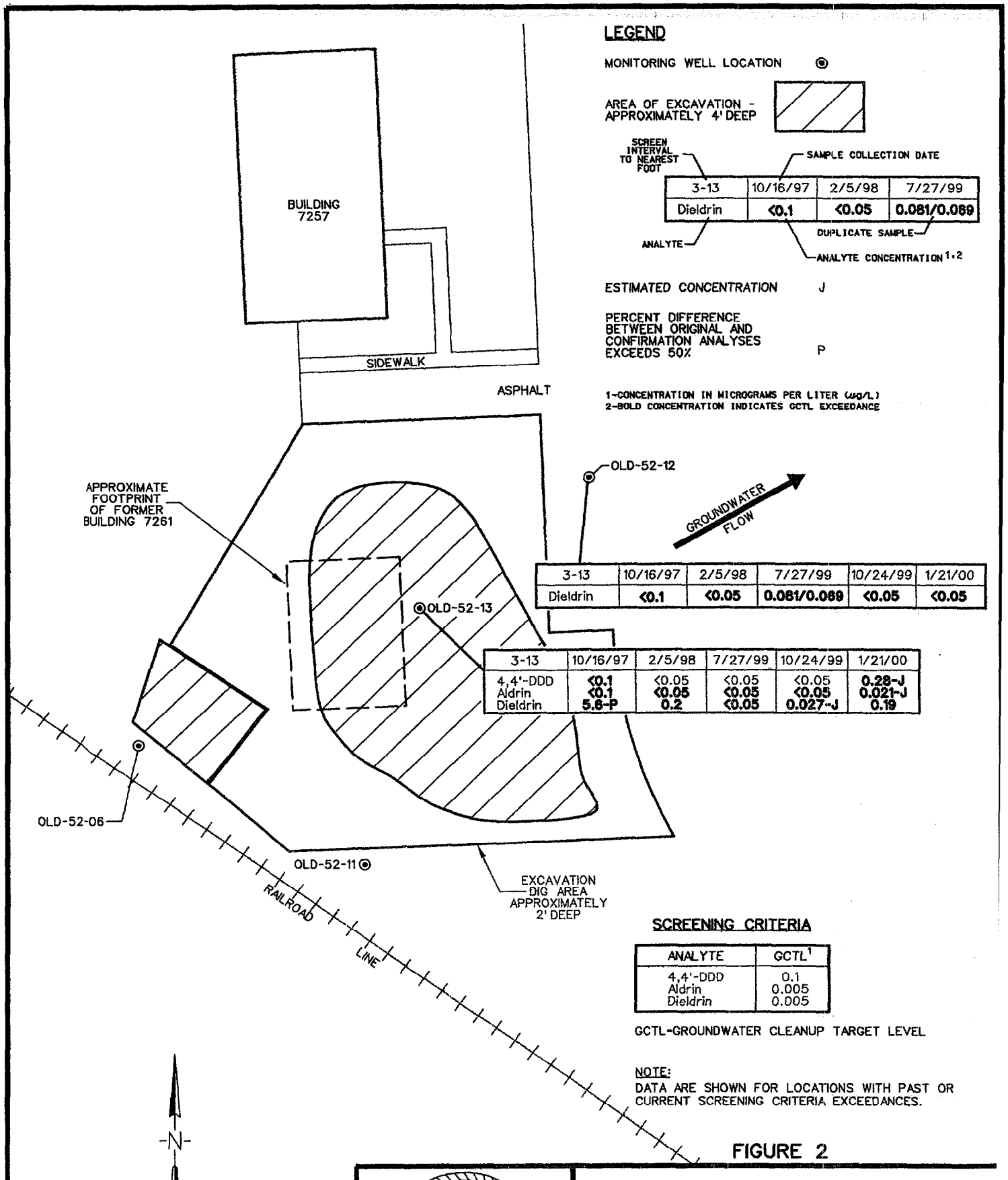

FIGURE 2

GROUNDWATER EXCEEDANCES JANUARY 2000 QUARTERLY MONITORING REPORT STUDY AREA 52 - McCOY ANNEX

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

n8-5x11v.dgn

CAD FILE NO./DATE: 74570057.dgn/5-16-00

TABLES

R4705013

TABLE 1

WATER-LEVEL ELEVATIONS SUMMARY
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well	Well Type	Screen Interval (BGS)	TOC Elevation (AMSL)	7/17/99		7/27/99		10/24/99		1/21/00	
				Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)	Depth to Water (BTOC)	Groundwater Elevation (AMSL)
OLD-52-06	0.5" well	6 - 10	94.22	NM	NM	NM	NM	NM	NM	6.39	87.83
OLD-52-11	2" well	4 - 14	93.14	NM	NM	NM	NM	4.07	89.07	5.70	87.44
OLD-52-12	2" well	3 - 13	91.73	2.59	89.14	2.89	88.84	2.92	88.81	4.42	87.31
OLD-52-13	2" well	3 - 13	91.36	3.11	88.25	3.35	88.01	2.37	88.99	3.95	87.41

Notes:
AMSL Above mean sea level
BGS Below ground surface
BTOC Below top of casing
NM Not measured
*All measurements are in units of feet.

TABLE 2

POSITIVE DETECTIONS IN GROUNDWATER - JANUARY 2000
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Florida GCTL[a]	OLD 52-11	OLD-52-12	OLD-52-13
Sample ID		NTC52G01112	NTC52G01212	NTC52G01312
Lab ID		A0A240127002	A0A240127003	A0A240127004
Sample Date		1/21/00	1/21/00	1/21/00
Pesticides (mg/L)				
4,4'-DDD	0.1			0.28 J
Aldrin	0.005			0.021 J
alpha-Chlordane[b]	2			0.044 J
Dieldrin	0.005			0.19
Endosulfan I	42			0.032 J
Heptachlor Epoxide	0.2			0.044 J

Footnotes:

[a] Groundwater Cleanup Target Level (Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999).

[b] Screening criteria substitution – Chlordane for alpha-Chlordane.

Empty cells indicate non-detects.

GCTL - Groundwater Cleanup Target Level

"J" - qualifier indicates an estimated concentration.

Only chemicals detected in at least one sample are shown.

Values in shaded cells are equal to or exceed the GCTL.

TABLE 3

HISTORICAL GROUNDWATER DETECTIONS
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Florida GCTL[a]	OLD-52-11				
Sample ID		52G01101	52G01102	NTC52G01110	NTC52G1111	NTC52G01112
Lab ID		S775908*1	A8B060161001	A9G280200003	A9J260203004	A0A240127002
Sample Date		10/16/97	2/5/98	7/27/99	10/24/99	1/21/00
Pesticides (ug/L)						
4,4'-DDD	0.1					
Aldrin	0.005					
alpha-Chlordane[b]	2					
Dieldrin	0.005					
Endosulfan I	42					
Endrin Aldehyde	NA			0.03J		
gamma-Chlordane[b]	2					
Heptachlor Epoxide	0.2					

TABLE 3

HISTORICAL GROUNDWATER DETECTIONS
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Florida GCTL[a]	OLD-52-12					
Sample ID		52G01201	52G01202	NTC52G01210	NTC52G01210-D	NTC52G1211	NTC52G01212
Lab ID		S775908*3	A8B060161003	A9G280200002	A9G280200004	A9J260203005	A0A240127003
Sample Date		10/16/97	2/5/98	7/27/99	7/27/99	10/24/99	1/21/00
Pesticides (mg/L)							
4,4'-DDD	0.1						
Aldrin	0.005						
alpha-Chlordane[b]	2						
Dieldrin	0.005			0.081	0.069		
Endosulfan I	42						
Endrin Aldehyde	NA				0.018J		
gamma-Chlordane[b]	2			0.011J	0.007J		
Heptachlor Epoxide	0.2						

TABLE 3

HISTORICAL GROUNDWATER DETECTIONS
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Florida GCTL[a]	OLD-52-13				
Sample ID		52G01301	52G01302	NTC52G01310	NTC52G1311	NTC52G01312
Lab ID		S775908*3	A8B060161003	A9G280200001	A9J260203003	A0A240127004
Sample Date		10/16/97	2/5/98	7/27/99	10/24/99	1/21/00
Pesticides (ug/L)						
4,4'-DDD	0.1					0.28 J
Aldrin	0.005					0.021 J
alpha-Chlordane[b]	2					0.044 J
Dieldrin	0.005	5.6 P	0.2		0.027 J	0.19
Endosulfan I	42					0.032 J
Endrin Aldehyde	NA					
gamma-Chlordane[b]	2					
Heptachlor Epoxide	0.2					0.044 J

Footnotes:

[a] Groundwater Cleanup Target Level [Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C. , May 26, 1999].
[b] GCTL substitution: Chlordane for alpha- and gamma-Chlordane.
Empty cells indicate non-detects.
"J" qualifier indicates an estimated value.
Only chemicals detected in at least one sample are shown.
"P" qualifier indicates a greater than 25% difference in concentration between columns.
Values in shaded cells are equal to or exceed the GCTL.

TABLE 4

VALIDATED GROUNDWATER ANALYTICAL RESULTS - JANUARY 2000
STUDY AREA 52

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Well Designation	Florida GCTL[a]	CAS Numbers	OLD-52-11	OLD-52-12	OLD-52-13
Sample ID			NTC52G01112	NTC52G01212	NTC52G01312
Lab ID			A0A240127002	A0A240127003	A0A240127004
Sample Date			1/21/00	1/21/00	1/21/00
Pesticides (µg/L)					
4,4'-DDD	0.1	72-54-8	0.05 U	0.05 U	0.28 J
4,4'-DDE	0.1	72-55-9	0.05 U	0.05 U	0.05 U
4,4'-DDT	0.1	50-29-3	0.05 UJ	0.05 UJ	0.05 UJ
Aldrin	0.005	309-00-2	0.05 U	0.05 U	0.021 J
alpha-BHC	0.2	319-84-6	0.05 U	0.05 U	0.05 U
alpha-Chlordane[b]	2	5103-71-9	0.05 U	0.05 U	0.044 J
Beta-BHC	0.02	319-85-7	0.05 U	0.05 U	0.05 U
Delta-BHC	2.1	319-86-8	0.05 U	0.05 U	0.05 U
Dieldrin	0.005	60-57-1	0.05 U	0.05 U	0.13
Endosulfan I	42	115-29-7	0.05 U	0.05 U	0.032 J
Endosulfan II[b]	42	33213-65-9	0.05 U	0.05 U	0.05 U
Endosulfan Sulfate	*	1031-07-8	0.05 U	0.05 U	0.05 U
Endrin	2	72-20-8	0.05 U	0.05 U	0.05 U
Endrin Aldehyde	*	7421-93-4	0.05 U	0.05 U	0.05 U
Endrin Ketone	*	53494-70-5	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.2	58-89-9	0.05 UJ	0.05 UJ	0.05 UJ
gamma-Chlordane[b]	2	12789-03-6	0.05 U	0.05 U	0.11 R
Heptachlor	0.4	76-44-8	0.05 UJ	0.05 UJ	0.05 UJ
Heptachlor Epoxide	0.2	1024-57-3	0.05 U	0.05 U	0.044 J
Methoxychlor	40	72-43-5	0.1 UJ	0.1 UJ	0.8 R
Toxaphene	3	8001-35-2	2 U	2 U	2 U

Notes:

[a] Groundwater Cleanup Target Level [Development of Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., May 26, 1999].

[b] GCTL substitutions: Chlordane for alpha-Chlordane and gamma-Chlordane; and Endosulfan I for Endosulfan II.

* Indicates that the GCTL is not available.

"J" qualifier indicates an estimated value.

"U" qualifier indicates analyte not detected.

"R" qualifier indicates that the data were rejected.

Values in shaded cells are equal to or exceed the GCTL.

ATTACHMENT A

GROUNDWATER SAMPLE LOG SHEETS

Groundwater Purging and Sampling Log

Date 012106 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/BE005C755 (OU3) or 810 (SA2) or 845 (SA52)
Sample Location: SW-52

[ ] Domestic Well Data — Flow-Thru Cell: — Sample ID No.: NTC52601112

[X] Monitoring Well Data — Make\Model: Horiba U22 — Sampled By: KJM

[ ] Other Well Type: — Serial No.: — C-O-C No.: 012120000

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1200	5.4	5	19.8	750	1.5	-15	5.93	100 mL
1	0.041 / 0.155	1205	5.3	5	19.2	700	1.3	-51	6.10	80 mL
2	0.163 / 0.617	1210	5.3	5	19.3	700	1.1	-54	6.26	80 mL
4	0.653 / 2.47	1225	5.3	5	19.6	750	1.4	-55	6.45	80 mL
6	1.469 / 5.56	1235	5.2	5	19.4	800	1.0	-75	6.54	80 mL
8	2.611 / 9.88	1240	5.2	5	19.5	800	0.8	-81	6.59	80 mL
10	4.08 / 15.44	1245	5.2	5	19.7	800	0.8	-87	6.66	80 mL
	[1 gal. = 3.785 L]									

OVA Reading (ppm):

Well Casing Diameter: 2" PVC
Total Well Depth: 41.0
Static Water Level: 5.70
Purge Vol. Calc.:

Start Purge (hr): 1150
End Purge (hr): 1250
Total Purge Time (min):
Total Vol. Purged:

Low Conductivity Standard: mS/m

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 012106	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1250	Turbid	5.2	5	19.6	800	0.8	-87	6.67	80 mL

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	X
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	X
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	

ADDITIONAL INFORMATION

Comments: @ 1205 lowered Flow Rate down To lowest Setting 80 ml/m. H_2O still past 3/10 foot. Sample after Turbidity Stabilized. as per Mike Cambell.

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

Date 1-21-00

Groundwater Purging and Sampling Log

Tetra Tech NUS

Project Site Name: NTC Orlando

Project No.: 7457/BE005C755 (OU3) or 810 (SA2) or 845 (SA52)

Sample Location: SA52 - McCoy Annex

[ ] Domestic Well Data

[X] Monitoring Well Data

[ ] Other Well Type:

Flow-Thru Cell: HORIBA

Make\Model: U-22

Serial No.: 9272028

Sample ID No.: NTC52G01212

Sampled By: G SISCO

C-O-C No.: 01212000

PURGING DATA

Casing Size (in.)	Gals. per ft. of Water / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1115	6.22	26.5	22.6	0.00	3.56	-75	4.48	150
1	0.041 / 0.155	1120	6.21	23.9	22.8	0.20	1.42	-86	4.49	140
2	0.163 / 0.617	1125	6.21	22.6	22.9	0.60	1.22	-90	4.48	120
4	0.653 / 2.47	1130	6.21	22.1	22.8	0.50	1.01	-89	4.46	100
6	1.469 / 5.56	1135	6.20	21.6	22.5	0.30	1.02	-89	4.46	100
8	2.611 / 9.88	1140	6.21	21.3	22.5	0.35	0.96	-90	4.45	95
10	4.08 / 15.44	1145	6.20	21.1	22.6	0.00	0.96	-90	4.45	95
	[1 gal. = 3.785 L]									

OVA Reading (ppm): N/A

Well Casing Diameter: 2.0

Total Well Depth: 13.0

Static Water Level: 4.42

Purge Vol. Calc.:

Tube @ 8.0 ft.

Start Purge (hr): 1115

End Purge (hr): 1145

Total Purge Time (min): 30

Total Vol. Purged:

WATER QUALITY SAMPLE PARAMETERS

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	DTW	Flow Rate
Date: 1-21-00	Description	pH units	mS/cm	°C	NTU	mg/L	mV	ft BTOC	ml/min
Time: 1145	CLEAR	6.20	21.1	22.6	0.00	0.96	-90	4.45	95

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	
→ Herbicides	8151	None	(1)	1-liter	amber glass	X
→ X-tra Organic	8XXX	None	(1)	1-liter	amber glass	X
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	

ADDITIONAL INFORMATION

Comments:

AWESOME.

Method:

[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:

[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD:

Duplicate ID No.:

Signature(s):

G. J. Sisco

Groundwater Purging and Sampling Log

Date 012100 — Tetra Tech NUS — Page 1 of 1

Project Site Name: NTC Orlando
Project No.: 7457/BE005C755 (OU3) or 810 (SA2) or 845 (SA52)

Sample Location: SA-52

[ ] Domestic Well Data — Flow-Thru Cell: YES — Sample ID No.: NTC526-01312

[X] Monitoring Well Data — Make\Model: Horiba — Sampled By: KSM

[ ] Other Well Type: ____ — Serial No.: ____ — C-O-C No.: 01212000

PURGING DATA

Casing Size (in.)	Gals. / Liters per ft. of Water	Time Hr:Min	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
0.5	0.01 / 0.038	1025	5.9	8	16.3	65	4.1	174	3.95	100
1	0.041 / 0.155	1030	6.1	8	16.9	60	3.4	169	3.95	100
2	0.163 / 0.617	1035	6.1	8	17.3	60	2.9	169	3.95	100
4	0.653 / 2.47	1040	6.1	8	17.4	55	2.9	168	3.95	100
6	1.469 / 5.56	1045	6.1	8	17.5	55	2.8	167	3.95	100
8	2.611 / 9.88	1050	6.1	8	17.6	55	2.7	166	3.95	100
10	4.08 / 15.44	1055	6.1	8	17.7	50	2.6	165	3.95	100
	[1 gal. = 3.785 L]	1100	6.2	8	17.8	50	2.4	164	3.95	100
		1105	6.2	8	17.8	50	2.2	164	3.95	100
OVA Reading (ppm):		1110	6.2	8	17.8	50	2.2	164	3.95	100
		1115	6.2	8	17.8	50	2.2	164	3.95	100
	PVC 2"	1120	6.1	8	17.9	50	2.2	163	3.95	100
Well Casing Diameter:	~~3.95~~	1125	6.1	8	18.0	50	2.1	162	3.95	100
Total Well Depth: 13.0										
Static Water Level: 3.95										
Purge Vol. Calc.:										
Start Purge (hr): 1017										
End Purge (hr): 1125										
Total Purge Time (min):										
Total Vol. Purged:										
LOND Standard				mS/m						

WATER QUALITY SAMPLE PARAMETERS

	Color Description	pH pH units	S.C. mS/cm	Temp. °C	Turbidity NTU	DO mg/L	ORP mV	DTW ft BTOC	Flow Rate ml/min
Date: 012100									
Time: 1130	Mostly Clear	6.1	8	18.0	50	2.2	162	3.95	100

ANALYSES INFORMATION

Analysis		Preservative	Container Requirements			Collected
TCL VOCs	8260B	HCl	3	40 ml	glass vials	
SVOCs/PAHs	8270C/8310	None	2	1-liter	amber glass	
Pesticides	8081A	None	1	1-liter	amber glass	X
Herbicides	8151	None	1	1-liter	amber glass	
X-tra Organic	8XXX	None	1 or 2	1-liter	amber glass	X
TAL Metals	6000/7000	HNO_3	1	1-liter	HDPE	

ADDITIONAL INFORMATION

Comments: Outside temp cold 40°F
Talk w/ Mike Cambell About Turbidity. He said sample Because Turbidity is stable @ 50 NTU for 30 minutes.

Method:
[X] Peristaltic Pump
[ ] Centrifugal Pump
[ ] Bladder Pump
[ ] Tube Evacuation
[X] Vacuum Jug Assembly
[ ] Bailer

Tubing Type:
[ ] Polyethylene
[X] Teflon
[ ] Teflon-lined Polyethylene

QA\QC SAMPLES

MS/MSD: ____

Duplicate ID No.: ____

Signature(s): Kenneth Mangeth